commenced to blow from the westward. The northern horizon began packing with altostratus and nimbus clouds. At 10 p. m. the wind had increased to a strong breeze from the NW., with heavy confused cross seas and heavy rain squalls, and by midnight was blowing from WNW., force 9, with heavy rains. Barometer had been falling steadily since the morning watch, and at midnight was reading 29.44, very unsteady.

During the next day, August 11, the wind blew WNW. 8–10, with heavy rains and very rough confused sea, vessel laboring. Noon position, 25° 14′ N., 123° 06′ E. Strong WNW. gale, mountainous seas, heavy steady rain, barometer 29.34. At 8 p. m. the wind had increased to a whole gale from the WNW., barometer 29.08. Midnight, ship laboring heavily, pitching and rolling, heavy rain, barometer 28.90.

August 12. Wind now blew with hurricane force; vessel shipping seas fore and aft. The course steered should clear Providence Reef, off the north coast of Mayko Pima, Loochoo (Nansei) Islands, about 28 miles. 6 a. m., barometer 28.76 and very unsteady. 10:30 a. m., vessel passed into shallow water; wind blew with hurricane force. An attempt was made to heave vessel to, but she would only lay beam to wind, heading about N. true. Took soundings, which gave a depth of 14 fathoms, but immediately after sounding vessel past into deep water. 11:40 a. m., picked up NW. Rock, Providence Reef close aboard starboard bow. Engine rang full astern, backing away from rocks, which appeared to be all around. When vessel was in a central position, let go starboard anchor, 90 fth. chain, 25 fth. water, trying to get vessel head to wind and sea and working the engine ahead, thereby stopping her from drifting down on the reefs, but it proved a failure, as the vessel would only lay beam to wind, and was dragging the anchor. Hove in anchor chain and found anchor gone. Dropped port anchor, 120 fth. chain, 20 fth. water. Vessel was still drifting sideways. Engine worked ahead and astern to clear various inlaying reefs as they showed; wind blowing WNW. 12; visibility very poor.

Noon position, August 12, 25° 03′ N., 125° 15′ E. Barometer 28.35, unsteady and still falling. At 1 p. m. the barometer reached its lowest, 28.27, and after that began rising rapidly. Continuously sounding, and at 6:20 p. m. sounding showed 100 fths. Hove up port anchor and found it also gone. Between 4 p. m. and 6 p. m. wind decreased to a fresh gale from the NW., very rough confused sea. When soundings showed 100 fths. the vessel was considered clear of reefs and an easterly course was again set. 6 p. m., barometer 28.48. At 10 p. m. wind shifted to WSW. and began blowing with hurricane force. Midnight, barometer 28.92. Between 10 p. m., Aug. 12, and 2 a. m., Aug. 13, the wind was at its highest. At 4 a. m. wind shifted to SSW. 10, and by noon had decreased to force 5. Noon position, Aug. 13, 23° 34′ N., 128° 23′ E., barometer 29.35.

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FIVE TYPHOONS IN THE FAR EAST DURING THE MONTH OF AUGUST, 1924

By Rev. José Coronas, S. J.

[Weather Bureau, Manila, P. I.]

There are five typhoons shown by our weather maps in the Far East during this month of August, only one having traversed the Philippine Islands.

Two Pacific typhoons: July 25 to August 7.—The first of these typhoons seems to have formed on July 25 to 27 over 300 miles to the west of the Ladrone Islands, not far from 139° longitude E. and 15° latitude N. After moving slowly to NNE. on the 28th and 29th it took a northwesterly direction on the 30th, its center being approximately situated at noon of August 1 in the neighborhood of 135° longitude E. and 25° latitude N. At 6 a. m. of the 3d the center was shown over the Eastern Sea near southwestern Japan and the northern Loochoos in about 30° latitude N., between 128° and 129° longitude E. The typhoon inclined then westward and probably filled up on the same day over the Eastern Sea between Shanghai and southwestern Japan.

The other Pacific typhoon appeared on August 2 west of the Ladrone Islands between 142° and 143° longitude E., 17° and 18° latitude N. It was a well-developed typhoon and well shown by the observation of Guam. It moved NNE. on the 2d; it recurved to N. and NNW. on the 3d, and W. on the 4th. The center as shown by the Bonins observations was situated on the 4th and 5th as follows:

August 4, 6 a. m., 144° 30′ longitude E., 27° latitude N.
August 4, noon, 143° 10′ longitude E., 28° 45′ latitude N.
August 5, 6 a. m., 136° 50′ longitude E., 28° 45′ latitude N.

After moving west for one day, the typhoon inclined WNW. in the afternoon of the 5th and NW. in the morning of the 6th. The center passed close to southwestern Japan on the early morning of the 6th and close to southwestern Korea in the early morning of the following day.

China Sea and Formosa typhoon: July 29 to August 7.—As stated at the end of my article for last month, this typhoon was shown by our weather maps on July 29 near 116° or 117° longitude E. and 18° or 19° latitude N. It moved westward for a while, very slowly, and recurved to N. and NNE. on July 31 to August 2 about 150 miles to the S. of Hongkong. The center crossed southern Formosa in the evening of the 3d; and then when near Meiacosima it recurved back to N. and W. again, crossing Formosa through the northermost part of the island during the night of 5th to 6th.

The Loochoos typhoon: August 7 to 23.—This typhoon remained for eight or nine days in the neighborhood of the Loochoos Islands, taking successively the following directions: W., SW., S., SE., E., NE., E., ESE., E., ENE., N., and WNW. The rate of progress of the typhoon during this period, particularly on the 13th, 14th, and 15th, was very small. The center of the typhoon appeared on the 7th to the SW. of the Bonins near 137° longitude E. and 24 latitude N. It moved to WNW. and reached the Loochoos on the evening or night of the 9th, when it began to follow the extraordinarily abnormal track as stated above. The center of this typhoon was shown at noon of the 19th over the Eastern Sea near 127° longitude E. and 30° latitude N. Hence it moved NNE., crossing the Korea Strait and the southeastern coast of Korea in the afternoon of the 20th. Once over the sea of Japan, it inclined eastward and traversed Japan through 39° latitude N. on the 22d.

The Luzon typhoon: August 22.—This is the first destructive typhoon that has visited the Philippines this year. It was probably formed from 300 to 500 miles to the east of San Bernardino Strait or of northern Samar. It moved WNW. and reached Luzon at about noon of the 22d, crossing the provinces of Neuva Ecija, Tarlac, Pangasinan, and Zambales, and doing considerable damage to the crops and properties in all these Provinces as well as in the northern part of the provinces of Pampanga and Bulacan. The direction of the typhoon to WNW. was kept through the China Sea on the 23d and through Hainan and the Gulf of Tongking on the 24th. The rate of progress of this typhoon on the 22d was about 19 miles per hour—very extraordinary for our latitudes. The center passed about 60 miles to the N. of Manila in the afternoon of the 22d. We have not received any barometric minimum from the very center of the typhoon. The lowest reported to us is that of San Isidro, Nueva Ecija, 739.94 mm., gravity correction not applied (29.13 inches). The position of the center on the 22d and 23d was as follows:

August 22, 6 a. m., 123° 45′ longitude E., 14° 45′ latitude N.
August 22, 2 p. m., 121° 30′ longitude E., 15° 20′ latitude N.
August 23, 6 a. m., 116° 25′ longitude E., 16° 55′ latitude N.
August 23, 2 p. m., 114° 15′ longitude E., 17° 40′ latitude N.